

Claim(s)

1. A sensor element comprising:

a sensor substrate; and

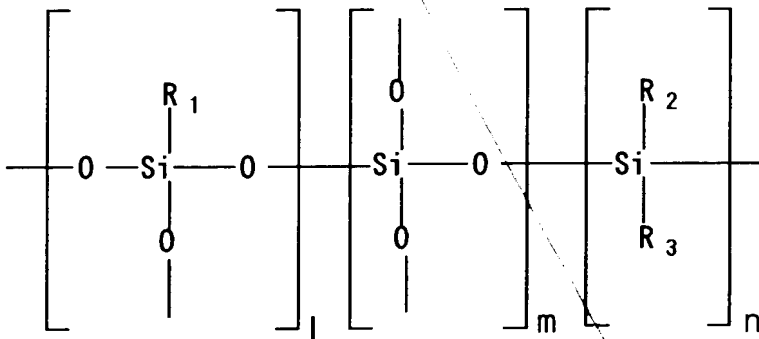
a flat sensing portion supported by the sensor substrate;

5 wherein the surface of the flat sensing portion is covered with a silicone resin film.

2. The sensor element according to Claim 1:

wherein the silicone resin film is a film of a cured silicone polymer.

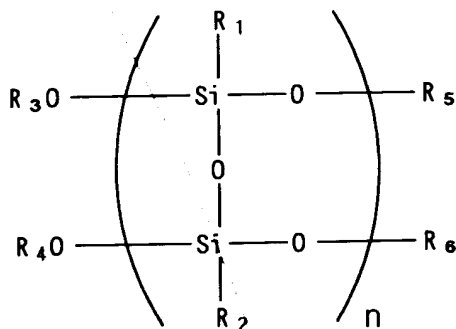
10 3. The sensor element according to Claim 2, wherein the silicone polymer is represented by the following general formula (1);



wherein R₁, R₂, and R₃, which may be the same or different, each is aryl group, hydrogen atom, aliphatic alkyl group, 15 hydroxyl group, trialkylsilyl group or a functional group having unsaturated bond; and l, m and n each is integers of 0 or more; and has a weight average molecular weight of not less than 1000.

4. The sensor element according to Claim 2:

wherein the silicone polymer is represented by the following general formula (2);



wherein R₁ and R₂, which may be the same or different, each is aryl group, hydrogen atom, aliphatic alkyl group or a functional group having unsaturated bond. Notations R₃, R₄, R₅ and R₆, which may be the same or different, each is hydrogen atom, aryl group, aliphatic alkyl group, trialkylsilyl group or a functional group having unsaturated bond; n is an integer; and has a weight average molecular weight of not less than 1000.

5. The sensor element according to Claim 3:

wherein the silicone polymer is a photocuring polymer.

6. The sensor element according to Claim 4:

wherein the silicone polymer is a photocuring polymer.

7. The sensor element according to Claim 1:

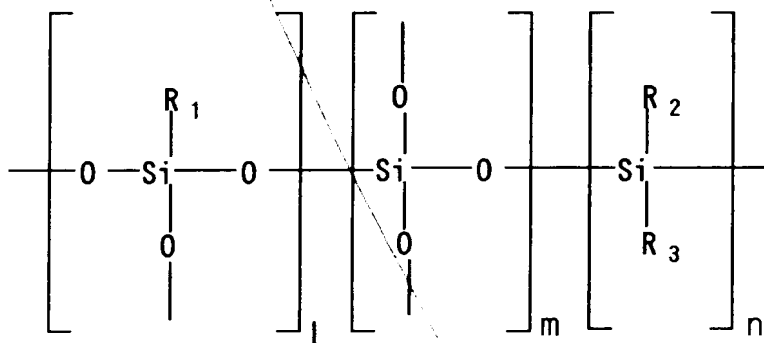
wherein the sensor element is selected from a magnetoresistance sensor, an air flow sensor, an acceleration sensor, a pressure sensor, a yaw rate sensor and an image sensor.

8. A method of fabricating a sensor element, comprising

a step of coating a solution of a silicone polymer to a flat sensing portion supported by a sensor substrate and a step of heating and curing thereof, to coat the sensing portion with a silicone resin film.

- 5 9. The method of fabricating a sensor element according to Claim 8:

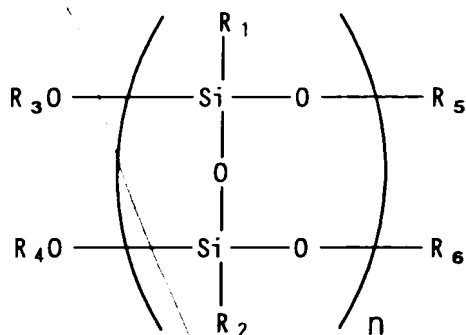
wherein the silicone polymer is represented by the following general formula (1);



- 10 wherein R₁, R₂, and R₃, which may be the same or different, each is aryl group, hydrogen atom, aliphatic alkyl group, hydroxyl group, trialkylsilyl group or a functional group having unsaturated bond; and 1, m and n each is integers of 0 or more; and has a weight average molecular weight of not less than 1000.

- 15 10. The method of fabricating a sensor element according to Claim 8:

wherein the silicone polymer is represented by the following general formula (2);



wherein R1 and R2, which may be the same or different, each is aryl group, hydrogen atom, aliphatic alkyl group or a functional group having unsaturated bond. Notations R3, R4, R5 and R6, which may be the same or different, each is hydrogen atom, aryl group, aliphatic alkyl group, trialkylsilyl group or a functional group having unsaturated bond; n is an integer; and has a weight average molecular weight of not less than 1000.

11. The method of fabricating a sensor element according to Claim 9:

10 wherein the silicone polymer is a photocuring polymer.

12. The method of fabricating a sensor element according to Claim 10:

wherein the silicone polymer is a photocuring polymer.

13. The method of fabricating a sensor element according to Claim 8:

wherein the step of heating and curing is carried out at temperature of from 100°C to 250°C.